

 kilobytes in size (measured in MS-DOS), and which was created on November 13, 2001, are herein incorporated by reference.

**In the Claims:**

Please **cancel** original claims 1-20.

Please **add** new claims 21-38.

21. An isolated nucleic acid molecule comprising a nucleic acid sequence encoding 1-deoxy-D-xylulose 5-phosphate reductoisomerase, wherein said 1-deoxy-D-xylulose 5-phosphate reductoisomerase is found in *Arabidopsis*.

22. An isolated polynucleotide selected from the group consisting of:

- (a) an isolated polynucleotide comprising a nucleotide sequence encoding the polypeptide of SEQ ID NO: 2;
- (b) an isolated polynucleotide comprising SEQ ID NO: 1;
- (c) an isolated polynucleotide comprising a nucleotide sequence which has at least 70% identity to that of SEQ ID NO: 1 over the entire length of SEQ ID NO: 1;
- (d) an isolated polynucleotide comprising a nucleotide sequence which has at least 80% identity to that of SEQ ID NO: 1 over the entire length of SEQ ID NO: 1;
- (e) an isolated polynucleotide comprising a nucleotide sequence which has at least 90% identity to that of SEQ ID NO: 1 over the entire length of SEQ ID NO: 1;
- (f) an isolated polynucleotide comprising a nucleotide sequence which has at least 95% identity to that of SEQ ID NO: 1 over the entire length of SEQ ID NO: 1;
- (g) an isolated polynucleotide that hybridizes, under stringent conditions to SEQ ID NO: 1 over the entire length of SEQ ID NO: 1; and
- (h) an isolated polynucleotide complementary to the polynucleotide sequence of (a), (b), (c), (d), (e), (f), or (g).

23. A DNA construct comprising, as operably associated components in the 5' to 3' direction of transcription: a promoter functional in a plant cell, a polynucleotide according to Claim 22, and a transcriptional termination sequence.

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24. A host cell comprising the construct of Claim 23.
25. The host cell according to Claim 24, wherein the host cell is a plant cell.
26. A plant comprising a cell according to Claim 25.
27. A method for the alteration of the isoprenoid content in a plant, comprising:

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- (a) transforming said plant with a construct comprising as operably linked components, a transcriptional initiation region functional in a plant, a polynucleotide according to Claim 22, and a transcriptional termination region; and
- (b) growing said plant, wherein said plant has said alteration of isoprenoid content.

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28. The method of Claim 27, wherein said polynucleotide is in the sense orientation.
29. The method of Claim 28, wherein the isoprenoid content is increased.
30. The method of Claim 27, wherein said polynucleotide is in the antisense orientation.
31. The method of Claim 30, wherein the isoprenoid content is decreased.

32. A method for producing an isoprenoid compound of interest in a ~~plant~~ cell, said method comprising:

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(a) obtaining a transformed plant, said transformed plant having and expressing in its genome: a primary construct comprising a DNA sequence encoding a polynucleotide comprising a transcriptional initiation region functional in a plant cell operably linked to a polynucleotide according to Claim 22; and at least one secondary construct comprising a DNA sequence encoding an isoprenoid enzyme operably linked to a transcriptional initiation region functional in a plant cell and

(b) growing said plant, wherein said plant produces said isoprenoid compound of interest.

33. The method of Claim 32, wherein said isoprenoid compound is selected from the group consisting of tocopherols, carotenoids, monoterpenes, diterpenes, and plastoquinones.

34. A method for increasing the non-mevalonate isoprenoid biosynthetic flux in a cell from a plant, said method comprising:

(a) transforming said plant with a construct comprising as operably linked components, a transcriptional initiation region functional in a plant, a polynucleotide according to Claim 22, and a transcriptional termination region and

(b) growing said plant, wherein said plant has an increased non-mevalonate isoprenoid biosynthetic flux.

35. A method for modulating disease resistance in a plant, comprising:

(a) introducing into said plant, a construct comprising a polynucleotide according to Claim 22; and

(b) growing said plant, wherein said plant exhibits said modulated disease resistance.

36. An isolated polynucleotide according to Claim 22, wherein said polynucleotide comprises the nucleotide sequence of SEQ ID NO: 1.

37. An isolated polynucleotide according to Claim 22, wherein said polynucleotide comprises a nucleotide sequence encoding the polypeptide of SEQ ID NO: 2.

38. An isolated polynucleotide according to Claim 22, wherein said polynucleotide comprises a nucleotide sequence which has at least 95% identity to that of SEQ ID NO: 1 or its complement, over the entire length of SEQ ID NO: 1.

3  
a  
SEQ ID NO: 1  
SEQ ID NO: 2